Complete Summary

GUIDELINE TITLE

Management of adults with chronic heart failure.

BIBLIOGRAPHIC SOURCE(S)

Michigan Quality Improvement Consortium. Management of adults with chronic heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2007 Jan. 1 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Michigan Quality Improvement Consortium. Management of adults with left-ventricular systolic dysfunction, including heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2005 Jan. 1 p.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

- Left-ventricular systolic dysfunction
- Chronic heart failure

GUIDELINE CATEGORY

Counseling
Diagnosis

Evaluation
Management
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Health Plans
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To achieve significant, measurable improvements in the diagnostic evaluation, pharmacologic treatment, and education of patients with chronic heart failure through the development and implementation of common evidence-based clinical practice guidelines
- To design concise guidelines that are focused on key management components of chronic heart failure to improve outcomes

TARGET POPULATION

- Adults with suspicion of left-ventricular systolic dysfunction, including heart failure
- Adults diagnosed with left-ventricular systolic dysfunction, including heart failure

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Diagnosis

1. History and physical examination
2. Assessment for obstructive sleep apnea
3. Chest x-ray
4. 12 lead electrocardiogram
5. Laboratory tests
6. Two dimensional echocardiography with Doppler or radionuclide ventriculography
7. Assessment for coronary artery disease and risk factors
8. Serial monitoring (weight, volume status, electrolytes, renal function, and activity tolerance)

Management/Treatment

1. Angiotensin-converting enzyme (ACE) inhibitors

2. Beta-blockers
3. Diuretics
4. Spironolactone
5. Angiotensin receptor blockers (ARBs)
6. Hydralazine and isosorbide dinitrate in combination

Education/Counseling

1. Daily self-monitoring of weight and action plan
2. Symptom recognition
3. Dietary sodium restriction
4. Risk factor modification (regular exercise; smoking cessation; control of blood pressure, diabetes mellitus (DM), lipids, etc)
5. Avoidance of excessive alcohol intake, illicit drug use, and use of nonsteroidal anti-inflammatory drugs (NSAIDS)
6. Vaccination against influenza and pneumococcal disease

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Michigan Quality Improvement Consortium (MQIC) project leader conducts a search of current literature in support of the guideline topic. Computer database searches are used to identify published studies and existing protocols and/or clinical practice guidelines on the selected topic. A database such as MEDLINE and two to three other databases are used.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence for the Most Significant Recommendation

A. Randomized controlled trials
B. Controlled trials, no randomization

C. Observational studies
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Using the health plan guideline summaries and information obtained from the literature search, the Michigan Quality Improvement Consortium (MQIC) director and/or project leader prepare a draft guideline for review by the MQIC Medical Directors.

The draft guideline and health plan guideline summaries are distributed to the MQIC Medical Directors for review and discussion at their next committee meeting.

The review/revision cycle may be conducted over several meetings before consensus is reached. Each version of the draft guideline is distributed to the MQIC Medical Directors, Measurement, and Implementation committee members for review and comments. All feedback received is distributed to the entire membership.

Once the MQIC Medical Directors achieve consensus on the draft guideline, it is considered approved for external distribution to practitioners with review and comments requested.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Once the Michigan Quality Improvement Consortium (MQIC) Medical Directors achieve consensus on the draft guideline, it is considered approved for external distribution to practitioners with review and comments requested.

The MQIC director also forwards the approved guideline draft to presidents of the appropriate state medical specialty societies for their input. All feedback received from external reviews is presented for discussion at the next MQIC Medical Directors Committee meeting. In addition, physicians are invited to attend the committee meeting to present their comments.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The level of evidence grades (A-D) are provided for the most significant recommendations and are defined at the end of the "Major Recommendations" field.

Adults with Suspicion of Left-Ventricular Systolic Dysfunction, Including Heart Failure

Evaluation

Initial assessment should include:

- Thorough history and physical examination **[C]** including consideration of obstructive sleep apnea
- Chest x-ray **[C]**
- 12 lead electrocardiogram **[C]**
- Laboratory tests and other studies should include: lipid profile, complete blood count (CBC), serum electrolytes, calcium, magnesium, blood urea nitrogen (BUN), creatinine, blood glucose, liver function tests, thyroid stimulating hormone (TSH), and urinalysis. **[C]**
- Two-dimensional echocardiography with Doppler or radionuclide ventriculography **[C]**
- Assessment for coronary artery disease and risk factors
- Serial monitoring should include: weight, volume status, electrolytes, renal function, and activity tolerance

Adults Diagnosed with Left Ventricular Systolic Dysfunction, Including Heart Failure

Pharmacological Management

Note from the National Guideline Clearinghouse (NGC): Please refer to the "Contraindications" field in this summary and/or the original guideline document for more information on contraindications to these medications.

Drugs recommended for routine use:

- Angiotensin-converting enzyme (ACE) inhibitors in all patients, unless contraindicated **[A]**
- Recommend beta-blockers (carvedilol, sustained-release metoprolol, bisoprolol) in all stable patients, unless contraindicated **[A]**

Drugs recommended for use in select patients:

- Diuretics and sodium restriction for evidence of fluid retention **[A]**
- Spironolactone for patients with severe symptoms of heart failure, preserved renal function, and normal potassium concentration **[A]**
- In patients who cannot tolerate ACE inhibitors due to cough or angioedema, angiotensin receptor blockers (ARBs) are recommended. **[A]**
- In patients who cannot tolerate ACE inhibitors or ARBs due to angioedema, hypotension, or renal insufficiency, hydralazine and nitrate combination is recommended. **[A]**
- African-American patients may be candidates for adding the combination of hydralazine and isosorbide dinitrate **[A]**

Education, Counseling and Risk Factor Modification

Educate patient/family regarding:

- Daily self-monitoring of weight and adherence to recommended patient action plan
- Recognition of symptoms and when to seek medical attention
- Moderate dietary sodium restriction (e.g., 2,000 to 2,500 mg sodium/day)
- Risk factor modification (regular exercise 3 times per week as tolerated **[B]**; smoking cessation; control of blood pressure, diabetes mellitus, lipids, etc)
- Avoid excessive alcohol intake, illicit drug use, and the use of nonsteroidal anti-inflammatory drugs (NSAIDS)
- Vaccination against influenza and pneumococcal disease

Definitions:

Levels of Evidence for the Most Significant Recommendation

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is provided for the most significant recommendations (See "Major Recommendations" field).

This guideline is based on the American College of Cardiology/American Heart Association (ACC/AHA) 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (www.acc.org).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Through a collaborative approach to developing and implementing common clinical practice guidelines and performance measures for symptomatic heart failure, Michigan health plans will achieve consistent delivery of evidence-based services and better health outcomes. This approach also will augment the practice environment for physicians by reducing the administrative burdens imposed by compliance with diverse health plan guidelines and associated requirements.

POTENTIAL HARMS

Adverse reactions to medications

CONTRAINDICATIONS

CONTRAINDICATIONS

- **Angiotensin converting enzyme (ACE) inhibitors**. Contraindications include: life-threatening adverse reactions (angioedema or anuric renal failure); pregnancy; hypotensive patients at immediate risk of cardiogenic shock; systolic blood pressure <80 mm Hg; serum creatinine >3 mg/dL; bilateral renal artery stenosis; or serum potassium >5.5 mmol/L
- **Beta-blockers**. Contraindications include:
    - Life-threatening adverse reactions (angioedema or anuric renal failure); pregnancy; hypotensive patients at immediate risk of cardiogenic shock; systolic blood pressure <80 mm Hg; serum creatinine >3 mg/dL; bilateral renal artery stenosis; or serum potassium >5.5 mmol/L
    - Patients with current or recent fluid retention history; unstable or poorly controlled reactive airway disease; symptomatic bradycardia or advanced heart block (unless treated with a pacemaker); or recent treatment with an intravenous positive inotropic agent

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline lists core management steps. Individual patient considerations and advances in medical science may supersede or modify these recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

When consensus is reached on a final version of the guideline, a statewide mailing of the approved guideline is completed. The guideline is distributed to physicians in the following medical specialties:

- Family Practice
- General Practice
- Internal Medicine
- Other Specialists for which the guideline is applicable (e.g., endocrinologists, allergists, pediatricians, cardiologists)

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

This guideline is based on the ACC/AHA 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (www.acc.org).

DATE RELEASED

2002 Dec (revised 2007 Jan)

GUIDELINE DEVELOPER(S)

Michigan Quality Improvement Consortium - Professional Association

SOURCE(S) OF FUNDING

Michigan Quality Improvement Consortium

GUIDELINE COMMITTEE

Michigan Quality Improvement Consortium Medical Director's Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Physician representatives from participating Michigan Quality Improvement Consortium health plans, Michigan State Medical Society, Michigan Osteopathic Association, Michigan Association of Health Plans, Michigan Department of Community Health and Michigan Peer Review Organization

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

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This guideline updates a previous version: Michigan Quality Improvement Consortium. Management of adults with left-ventricular systolic dysfunction, including heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2005 Jan. 1 p.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Michigan Quality Improvement Consortium Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 14, 2004. The information was verified by the guideline developer on July 27, 2004. This NGC summary was updated by ECRI on February 24, 2005. The information was verified by the guideline developer on February 25, 2005. This NGC summary was updated by ECRI Institute on July 11, 2007. The updated information was verified by the guideline developer on July 16, 2007.

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